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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SANTOSH PAUL ABRAHAM, SIMONE MERLIN, SAMEER VERMANI, and HEMANTH SAMPATH

Appeal 2016-005913[1]
Application 13/247,062
Technology Center 2400

Before JOHN A. JEFFERY, ERIC S. FRAHM, and JENNIFER L. McKEOWN, *Administrative Patent Judges*.

FRAHM, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Introduction

Appellants appeal under 35 U.S.C. § 134(a) from a final rejection of claims 21–23, 25, 28–31, 33, 36–39, 41, and 44–46. Claims 1–20 have been canceled. Claims 24, 26, 27, 32, 34, 35, 40, 42, and 43 have been objected to as dependent upon rejected claims, but allowable if rewritten in

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[1] As noted by Appellants in the Appeal Brief (App. Br. 4), this application is related to U.S. Patent Application Serial No. 13/247,023, which also claims benefit to U.S. Provisional Patent Application Nos. 61/387,542, 61/389,495, 61/405,283, 61/422,098, 61/432,115, 61/405,194, 61/409,645, and 61/414,651.

independent form including all the limitations of the base claims and any intervening claims (Final Act. 3). We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

Exemplary Claims

Exemplary claims 21 and 22 under appeal, with emphases and bracketed information added to disputed portions of the claims, read as follows:

> 21. An apparatus for wireless communication, comprising:
> a receiver configured to receive a message indicating that channel state information is requested;
> a processing system configured to generate a *communication comprising a field for indicating if a first segment of channel state information [CSI] of a plurality of segments of channel state information is being transmitted*; and
> a transmitter configured to transmit the communication.
>
> 22. The apparatus of Claim 21, wherein the field comprises one bit.

The Examiner's Rejection

The Examiner rejected claims 21, 23, 25, 28–31, 33, 36–39, 41, and 44–46 under 35 U.S.C. § 103(a) over the combination of Basson et al. (US 2007/00195811 A1; published Aug. 23, 2007) and Nayeb Nazar et al. (US 2011/0249578 A1; published Oct. 13, 2011) (hereinafter, "Nazar"). Final Act. 7–17; Ans. 3–13.

Issues on Appeal

Based on Appellants' arguments in the Briefs (App. Br. 7–17; Reply Br. 2–10),[2] the following issues are presented on appeal:

(1) Did the Examiner err in rejecting claims 21, 28, 29, 36, 37, and 44–46 under 35 U.S.C. § 103(a) over the combination of Basson and Nazar because the combination fails to teach or suggest "a communication comprising a field for indicating if a first segment of channel state information of a plurality of segments of channel state information is being transmitted," as recited in representative independent claim 21?

(2) Did the Examiner err in rejecting claims 22, 30, and 38 under 35 U.S.C. § 103(a) over the combination of Basson and Nazar because the combination fails to teach or suggest "wherein the field comprises one bit?"

(3) Did the Examiner err in rejecting claims 23, 31, and 39 under 35 U.S.C. § 103(a) over the combination of Basson and Nazar because the combination, and specifically Basson, fails to teach or suggest "the bit value

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[2] Appellants present separate grounds of patentability as to (i) dependent claim 22 (App. Br. 13–14; Reply Br. 6–7); (ii) dependent claim 23 (App. Br. 14–15; Reply Br. 7–8); and (iii) dependent claim 25 (App. Br. 15; Reply Br. 8). Appellants rely on the arguments presented for (i) claim 22 as to the patentability of claims 30 and 38; (ii) claim 23 as to the patentability of claims 31 and 39; and (iii) claim 25 as to the patentability of claims 33 and 41 (App. Br. 16; Reply Br. 9). Appellants do not present arguments regarding the separate patentability of claims 28, 29, 36, 37, and 44–46 (App. Br. 15–16; Reply Br. 9). Therefore, we select independent claim 21 as representative of the group of claims (claims 21, 28, 29, 36, 37, and 44–46) rejected as being obvious over the combination of Basson and Nazar, and we decide the rejection of (i) claims 30 and 38 on the same basis as claim 22; (ii) claims 31 and 39 on the same basis as claim 23; and (iii) claim 25 on the same basis as claim 25.

as a value of '1' if a first segment of channel state information is included in the communication?"

(4) Did the Examiner err in rejecting claims 25, 33, and 41 under 35 U.S.C. § 103(a) over the combination of Basson and Nazar because the combination, and specifically Basson, fails to teach or suggest "wherein the communication comprises a second field for indicating a number of segments of channel state information remaining to be transmitted?"

ANALYSIS

We have reviewed the Examiner's rejections (Final Act. 7–17; Ans. 3–13) in light of Appellants' arguments in the Appeal Brief (App. Br. 7–17) and the Reply Brief (Reply Br. 2–10) that the Examiner has erred, as well as the Examiner's response to Appellants' arguments in the Appeal Brief (Ans. 13–40). For the reasons that follow, we agree with Appellants' arguments regarding the rejection of (i) dependent claim 22 (App. Br. 13–14; Reply Br. 6–7); (ii) dependent claim 23 (App. Br. 14–15; Reply Br. 7–8); and (iii) dependent claim 25 (App. Br. 15; Reply Br. 8); and we disagree with Appellants' arguments as to independent claim 21 (App. Br. 9–13; Reply Br. 2–6).

Claims 21, 28, 29, 36, 37, and 44–46

We disagree with Appellants' contentions (App. Br. 9–13; Reply Br. 2–6) that the Examiner erred in rejecting independent claim 21 because the combination of Basson and Nazar fails to teach or suggest "a processing system configured to generate a communication comprising a field for indicating if a first segment of channel state information of a plurality of

segments of channel state information is being transmitted" as recited in representative independent claim 21.

We agree with the Examiner (Ans. 15–17 and 20) that Basson's Table 8 (*see* ¶ 38) teaches or suggests a field for indicating a first segment of CSI (i.e., Basson's CSI relating to a first data stream) is transmitted as recited in claim 21. Specifically, Table 8 shows an explicit CSI feedback indicator in an indicator field (i.e., Basson's "TxBF Capability field") having a code of 10, indicating "immediate feedback" (¶ 38; Table 8, in "Encoding" column third line down on right side). We find that Basson's "immediate feedback" at least suggests a first segment of CSI "is being transmitted" as recited in representative independent claim 21. As a result, we also agree with the Examiner (Ans. 3–7 and 15–21) that Basson (Figs. 1–5; Tables 2 (¶ 30), 5(¶ 34), and 8 (¶38); ¶¶ 20, 26–29 and 32–35) discloses an apparatus for wireless communication including a processing system configured to generate a communication as recited in independent claim 21.

The Board may rely on less than all of the references applied by the Examiner in an obviousness rationale without designating it as a new ground of rejection where, as here, the thrust of the rejection has not changed. *See In re Boyer*, 363 F.2d 455, 458 n.2 (CCPA 1966) (citing *In re Bush*, 296 F.2d 491, 496 (CCPA 1961)); *see also* MPEP § 1207.03(a)(II). Accordingly, we sustain the Examiner's rejection of representative independent claim 21, as well as claims 28, 29, 36, 37, and 44–46 grouped therewith, on the basis of Basson alone.

Claims 22, 30, and 38

We concur with Appellants' contentions (App. Br. 13–14 and 16; Reply Br. 6–7 and 9) that the combination of Basson and Nazar fails to teach

or suggest "wherein the field comprises one bit" as recited in claims 22, 30, and 38. The Examiner relies upon Basson's paragraphs 29, 33, and 34 as disclosing a CSI control field comprising one or two bits (Ans. 9). However, Basson merely discloses "[a]n example format CSI/Steering field of *2 bits*" (¶ 29) (emphasis added). In the Examiner's response to Appellants' arguments in the Answer (*see* Ans. 32–34), the Examiner finds "Nazar discloses about indexing a plurality of CSI (or CQI, channel quality information) segments" (Ans. 33 citing Nazar ¶ 127). We cannot agree with the Examiner (Ans. 33) that Nazar's CQI index meets the limitations recited in claim 22 of a communication field indicating a segment of CSI (channel state information) is being transmitted (*see* claim 21 from which claim 22 depends), where the field contains one bit (*see* claim 22). Further, Nazar discloses an ACK/NACK signal 220 and RI signal 230 as being "1-bit or 2-bit" (¶ 60), signal 220 is an acknowledgement or handshake signal and signal 230 is a rank indication signal (¶ 7) – not channel state information signals. Therefore, we cannot agree with the Examiner that the combination of Basson and Nazar teaches or suggests "wherein the [CSI communication] field comprises one bit" as recited in claim 22.

Accordingly, we do not sustain the Examiner's rejection of dependent claims 22, 30, and 38.

Appellants utilize the transitional term "comprises" in claim 22. The term "comprises" is a conjugate, or another form, of the term "comprising."

"The transitional term 'comprising' . . . is inclusive or open-ended and does not exclude additional, unrecited elements or method steps." *Georgia-Pacific Corp. v. U.S. Gypsum Co.,* 195 F.3d 1322, 1327 (Fed. Cir. 1999) (citing MPEP § 2111.03 (6th ed. 1997)). "A drafter uses the term

'comprising' to mean 'I claim at least what follows and potentially more.'" *Vehicular Techs. Corp. v. Titan Wheel Int'l, Inc.*, 212 F.3d 1377, 1383 (Fed. Cir. 2000). Although the transitional term "comprising" indicates that the claim is open-ended, the term does not render each limitation or phrase within the claim open-ended. *See Dippin' Dots, Inc. v. Mosey*, 476 F.3d 1337, 1343 (Fed. Cir. 2007); *Spectrum Int'l, Inc. v. Sterilite Corp.*, 164 F.3d 1372, 1380 (Fed. Cir. 1998). "Comprising" means that the claim can be met by a system that contains features over and above those specifically required by the claim element, *but only if the system still satisfies the specific claim-element requirements*: the claim does not cover systems whose unclaimed features make the claim elements no longer satisfied. Thus, in the instant case of dependent claim 22, a claim-covered " processing system configured to generate a communication" may have *a* field (*see* claim 21 from which claim 22 depends) which in turn may be composed of *one* bit (*see* claim 22), but the field must in particular be made of one bit as opposed to more than one bit.

Therefore, we interpret the limitation of claim 22, "wherein the field comprises one bit," to modify claim 21 (from which claim 22 depends) to mean that the recited "communication" has *one* field which in turn has *one* bit. "The name of the game is the claim." *In re Hiniker, Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998). In other words, while claim 22 leaves open the possibility the communication field could contain two or more bits, such has not been recited in claim 22. Notably, by way of contrast and comparison, claims 24–27 each recited a "second field," and claim 24 further specifies "a second field *including three bits*" (claim 24) (emphasis added). To say that the term "comprises" causes claim 22 to encompass a field having more than

one bit (as taught or suggest by the combination of Basson and Nazar) is incongruous with the plain meaning of claim 22 when construed in light of the Specification.

Claims 23, 31, and 39

We concur with Appellants' contentions (App. Br. 14–16; Reply Br. 9) that the combination of Basson and Nazar, and specifically Basson, fails to teach or suggest "the bit value as a value of '1' if a first segment of channel state information is included in the communication" as recited in claims 23, 31, and 39. The Examiner relies upon paragraphs 29, 33, and 34 (Table 5) of Basson as teaching a bit value of 1 for the first CSI segment (Ans. 10 and 35–36). However, Table 5 shows a CSI feedback signal frame/field with a value of 2, not 1. And, as stated above with respect to claim 22, although paragraph 29 of Basson discloses an ACK/NACK signal 220 and RI signal 230 as being "1-bit or 2-bit" (¶ 60), signal 220 is an acknowledgement or handshake signal and signal 230 is a rank indication signal (¶ 7) – not channel state information signals.

Accordingly, we do not sustain the Examiner's rejection of dependent claims 23, 31, and 39.

Claims 25, 33, and 41

We concur with Appellants' contentions (App. Br. 15–16; Reply Br. 8–9) that the combination of Basson and Nazar, and specifically Basson, fails to teach or suggest "wherein the communication comprises a second field for indicating a number of segments of channel state information remaining to be transmitted." The Examiner relies upon paragraphs 31 and 35 of Basson as disclosing a second field as claimed (Ans. 11 and 37).

Although paragraph 35 discloses a CSI Matrices Report with a specified bit size, and paragraph 31 describes "a QoS-null with HTC field," this is not sufficient to suggest that there are two fields. Instead, we find the Examiner has failed to show or clearly articulate that the "second field" of claims 25, 33, and 41 are known in the prior art.

Accordingly, we do not sustain the Examiner's rejection of dependent claims 25, 33, and 41.

CONCLUSIONS

(1) The Examiner did not err in rejecting claims 21, 28, 29, 36, 37, and 44–46 under 35 U.S.C. § 103(a) over the combination of Basson and Nazar because the combination teaches or suggests "a communication comprising a field for indicating if a first segment of channel state information of a plurality of segments of channel state information is being transmitted," as recited in representative independent claim 21.

(2) The Examiner erred in rejecting claims 22, 30, and 38 under 35 U.S.C. § 103(a) over the combination of Basson and Nazar because the combination fails to teach or suggest "wherein the field comprises one bit."

(3) The Examiner erred in rejecting claims 23, 31, and 39 under 35 U.S.C. § 103(a) over the combination of Basson and Nazar (i) due to dependency on respective ones of claims 22, 30, and 38; and (ii) because the combination, and specifically Basson, fails to teach or suggest "the bit value as a value of '1' if a first segment of channel state information is included in the communication."

(4) The Examiner erred in rejecting claims 25, 33, and 41 under 35 U.S.C. § 103(a) over the combination of Basson and Nazar because the

combination, and specifically Basson, fails to teach or suggest "wherein the communication comprises a second field for indicating a number of segments of channel state information remaining to be transmitted."

DECISION

The Examiner's obviousness rejection of (i) claims 21, 28, 29, 36, 37, and 44–46 is affirmed, and (ii) claims 22, 23, 25, 30, 31, 33, 38, 39, and 41 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART